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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS.

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AND STATE AGRICULTURAL COLLEGES,
COOPERATING.

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BOYS' AND GIRLS' CLUB WORK. COMMON HOME CANNING DIFFICULTIES.

JELLY MAKING.

There need be no uncertainty about making jelly of good quality if a few points are observed and some simple tests made. After the fruit has been boiled and the texture broken down it should be poured into a jelly bag and permitted to drain for a considerable time. Forcing the juice from the pulp will cause cloudy jelly. When the juice has been collected, place 2 teaspoonfuls of unboiled and unsweetened fruit juice in 2 teaspoonfuls of grain alcohol and stir until well mixed. Allow the mixture to settle for one-half hour, preferably in a glass tumbler. If a jellylike substance collects in the bottom of the mixture it is evidence that pectin (a starchlike substance found in many fruits, which is necessary to make the juice jell) is present and the juice suitable for jelly making. When this test shows its absence the necessary pectin may be extracted (by cooking) from apples, green citron melon, or the white portion of orange peel and may be added to the juice. Twelve ounces of sugar added to a pint of juice will make a jelly of the proper firmness and texture. Jelly is ready to be poured into the glasses when two rows of drops form on the end of a paddle or on the edge of a spoon held sidewise. The temperature is usually 220° F.

CORN, PEAS, BEANS, ASPARAGUS.

Canned corn, peas, beans, and asparagus may show no signs of spoilage and still when opened have a sour taste and a disagreeable odor. This specific trouble is known to the canner as "flat-sour," and can be avoided if the canner will use fresh product, that is, one which has not been gathered more than 5 or 6 hours, and will blanch, cold-dip, and pack one jar of product at a time, and place each jar in the canner as it is packed. The first jars in will not be affected by the extra cooking. When the steam-pressure canner is used the jars or cans may be placed in the retort, the cover placed in position, but not clamped down until the retort is filled. Rapid cooling of these products prevents overcooking, clarifies the liquid, and preserves the shape and texture.

Corn.—Corn seems to give the club member the most trouble, but with a little care and study this product may be canned as easily as any other grown in the garden. A little experience in selecting the ear and ability to recognize corn that is just between the milk and the dough stage are important. Blanch not longer than 5 minutes. A plunge in cold water is sufficient. Cut the corn from the cob with a sharp knife and pack it at once into sterilized jars. Best results can be accomplished when two people cut and one person fills. If it is necessary for one person to work alone, cut off sufficient corn to fill one jar, pour on boiling water, add salt, place the rubber and the cap in position, and put the jar at once into the canner. A little overcooking does not injure the quality of canned corn. The corn should not be tightly packed in the jar; it expands a little in processing, and for this reason each jar should be filled not quite full. Corn that has a cheesy appearance after canning had reached the dough stage before being packed. Corn should never be allowed to remain in the cold-dip, and large quantities should not be dipped at one time unless sufficient help is available to handle the product quickly. Waterlogged or soaked corn indicates slow and inefficient packing.

Peas.—When peas are keeping well but the liquid shows a cloudy or hazy appearance, it indicates that the product was roughly handled in blanching and cold-dipping, or that split or broken peas were not removed before packing. When peas are too old and blanching is not

carefully done the skin becomes cracked and the liquid cloudy. Some waters of peculiar mineral content have a tendency to increase cloudiness.

FADED BEETS.

Small beets that run 40 to the quart are the most suitable size for first-class packs. The older the beet the more chance there is for loss of color. When preparing the beet leave on 1 inch of the stem and all of the tail while blanching. Blanch not more than 5 minutes, and cold-dip. The skin should be scraped from the beet, not peeled. Beets should be packed whole, if possible. Well-canned beets will show a slight loss of color when removed from the canner, but will brighten up in a few days.

SHRINKAGE OF GREENS.

Shrinkage of greens or potherbs during the canning process is usually due to insufficient blanching. The proper way to blanch all greens or potherbs is in a steamer or in a vessel improvised to do the blanching in live steam above the water line. If this is done a high percentage of mineral salts and volatile oil is retained by the product.

SHRINKAGE DURING STERILIZING.

Such shrinkage may be due to one or more of the following:

1. Improper blanching and cold-dipping.
2. Careless packing, poor grading.
3. Sterilizing for too long a period.
4. Lack of judgment in the amount and size of product put into the container.

OPERATION OF HOT-WATER BATH OUTFIT.

These four rules will help to avoid difficulties in the operation of the hot-water bath canning outfit:

1. Support the jars on a perforated platform sufficiently to permit the circulation of water under, among, and around the jars.
2. Have the water cover the tops of the jars by at least 1 inch.
3. Count time as soon as the water begins to *jump* over the entire surface.
4. Remove the jars from the water and tighten the covers as soon as the time is up.

Loss of liquid will result during the sterilizing period when a hot-water bath outfit is used:

1. If the water in the canner does not cover the tops of the jars.
2. If the platform in the bottom of the canner does not permit the water to circulate underneath. Towels, excelsior, newspapers, hay, and the like are unsatisfactory.
3. If the covers to the jars are adjusted too loosely.

OPERATION OF STEAM-PRESSURE CANNER.

To secure the best results in the operation of the steam-pressure canner the following precautions should be observed:

1. Place each jar in the canner as soon as packed.
2. Have water come to, but not above, the platform.
3. Have the canner absolutely steam tight.
4. When the canner has been filled, fasten the opposite clamps moderately tight. When this has been done, tighten each clamp fully.
5. Allow the petcock to remain open until live steam blows from it.
6. Close the petcock, allowing just a trace of steam to escape.
7. Force the pressure to the required point before counting time.
8. Maintain a uniform pressure during the sterilizing period.
9. Allow the canner to cool before opening the petcock.
10. Have the petcock completely closed during the cooling.
11. Open the petcock before vacuum forms. This is evidenced by a rush of air into the canner when the petcock is open. You can test this by placing the finger over the end of the petcock. If a vacuum forms it will draw the flesh of the finger into the opening.
12. Remove the jars from the canner and tighten the lids as soon as the canner is opened.

The following things will cause a loss of liquid during the sterilizing period when a steam-pressure canner is used:

1. Leakage of steam at the joint and around the fittings.
2. Fluctuation of pressure, such as running the pressure up to 12 pounds, down to 7 pounds, and back to 10 pounds.
3. Blowing the steam from the petcock at the close of the sterilizing period.
4. Permitting a vacuum to form in the canner.
5. Having the wire bails on the glass-top jars so loose that they will not go in with a snap.

MOLD ON CANNED GOODS.

Mold may develop on canned goods:

1. If the seal is defective.
2. If, after sterilizing, the tops are removed from the jars to replace the rubber ring. The jars should be returned to the canner for at least 5 minutes when this is done.
3. If the jars are kept in a damp place where the rubbers may decompose, mold may enter through these decomposed rubbers.

HOW TO CALCULATE SIRUP DENSITY.

Unsatisfactory results frequently follow from the use of sirups which are not of the density best suited to the particular purpose for which they are employed. The following table gives the proportions of sugar and water required to prepare sirup of any desired density. No allowance has been made for evaporation.

Proportions of sugar and water in sirup of different density.

Desired sirup density.	Amount of sugar.	Amount of water.	Desired sirup density.	Amount of sugar.	Amount of water.
Per cent.	Pounds.	Quarts.	Per cent.	Pounds.	Quarts.
12	1½	5½	35	7	6½
15	3	8½	40	2	1½
18	4½	10½	50	2	1
24	6	9½	60	6	2
28	7	9	64	16	4½

ACIDITY OF TOMATOES.

An acidity that is disagreeable to the taste is sometimes noted in canned tomatoes. This may be corrected by adding $\frac{1}{4}$ teaspoonful of baking soda to a quart of the canned tomatoes when cooking for table use.

BREAKAGE OF JARS.

When breakage of jars occurs it is due to such causes as:

1. Overpacking the jars. Corn, pumpkin, peas, lima beans, and sweet potatoes swell or expand in processing. Do not fill the jars quite full of these products.
2. Placing the cold jars in hot water or vice versa. As soon as the jars are filled with hot sirup or hot water, place them immediately in the canner.
3. Having the wire bail of glass-top jars too tight.
4. In a steam canner, having too much water in the canner. The water should not come above the platform.
5. Allowing a cold draft to strike the jars when they are removed from the canner.
6. Having the wire bail too tight, thus breaking the jars when the lever is forced down.

DEFECTIVE JARS.

The following are valuable tests for screw-top jars:

1. Place the top on the jar without the rubber. Turn it down tight. If the thumb nail can be inserted between the top and the glass, the top is usually defective.
2. Place the rubber and the cap in position and screw them down lightly. Pull the rubber from its position. Release it. If the rubber returns to its position between the top and the jar, the top is defective.

Glass-top jars:

1. Place the glass top on the jar without the rubber. Tap around the outer edge of the top with the finger. If the top rocks, it is defective.
2. The wire bail placed over the top of the cover should go in with a snap, even when the tightening lever or the clamp spring is up. If it does not, remove the bail from the tightening lever and bend it to make it tight. This tightening of the bail should be done every year.

RUBBERS.

A good rubber will stand considerable pulling and jerking and will return to its original shape. A good rubber will also stand several hours of boiling in a hot-water-bath outfit without being affected.

ARE TIN CANS SAFE AND PRACTICAL FOR USE IN HOME CANNING?

If the proper sanitary requirements are provided and instructions of the cold-pack method as furnished by the United States Department of Agriculture are followed, it is entirely safe and practical to use tin cans for nearly all kinds of fruits, vegetables, and other food products. Food poisoning (commonly called ptomaine poisoning) and the effects ascribed to "salts of tin" result from improper handling and improper preparation of the product before packing or from allowing the product to stand after it has been opened. Never use a product which shows signs of spoilage.

BAD EFFECTS OF TOO MUCH SALT.

Most vegetables as well as meats are injured in flavor and quality by an excessive use of salt for seasoning in the canning process. A little salt is very palatable, and its use should be encouraged, but it is better to add no salt in canning than to use too much. It can be added to suit the taste when canned goods are served.

WATER FOR HOME CANNING.

The hardening of beans, peas, and some other products after cooking or processing, or the turning of green vegetables to a dark olive or russet color, usually indicates that the water contains too high a percentage of mineral matter. Water used for canning purposes should be pure, soft, and as free as possible from objectionable and excessive quantities of mineral matter. If you are to can any large quantity of food products and have difficulty with the water available, it would be well to have the water analyzed and to secure the advice of some one at your college of agriculture.

NECESSARY EQUIPMENT.

Many people believe that in order to succeed by the cold-pack method of canning it is necessary to buy expensive commercial canning outfits. This is not true. Wash boilers, lard cans, or other vessels with a tight cover and which can be fitted with a false bottom can be successfully used in the canning of fruits, vegetables, soups, or meats. The only advantage of commercial canners designed for home use over homemade devices is the saving of labor and time in the handling of an outfit with more ready conveniences.

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